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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/266,237	03/10/1999	WARREN M. FARNWORTH	97-1433	5524

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EXAMINER

KOBERT, RUSSELL MARC

ART UNIT	PAPER NUMBER
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2829

DATE MAILED: 06/27/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/266,237

Applicant(s)

FARNWORTH ET AL.

Examiner

Russell M Kobert

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 11 April 2002 and 12 February 2002.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-48 is/are pending in the application.
- 4a) Of the above claim(s) 3, 4, 13-16, 19-24, 28-30 and 33-48 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1, 5-7, 9-12, 17, 18, 25-27 and 31 is/are rejected.
- 7) ☒ Claim(s) 2, 8 and 32 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 11. 6) ☐ Other: _____

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1. Applicant's arguments with respect to claims 1, 2, 5-12, 17, 18, 25-27 and 31-32 have been considered but are moot in view of the new ground(s) of rejection.

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) do not apply to the examination of this application as the application being examined was not (1) filed on or after November 29, 2000, or (2) voluntarily published under 35 U.S.C. 122(b). Therefore, this application is examined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

3. Claims 1, 5-7, 9-12, 17, 18, 25-27 and 31 are rejected under 35 U.S.C. 102(e) as being anticipated by Soejima et al (6114864).

Soejima et al anticipates (Figure 6) an interconnect for testing a semiconductor component having a bumped contact comprising:

a substrate (11); and

a contact (14 and 15) on the substrate configured to electrically engage the bumped contact, the contact comprising a recess (12 and 20) in the substrate having a size approximately equal to that of the bumped contact, and a plurality of flexible leads

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cantilevered over the recess configured to support the bumped contact within the recess and to move within the recess by a distance sufficient to accommodate variations in a size, a shape or a planarity of the bumped contact, each lead having a selected spring constant and at least one projection (16) configured to penetrate the bumped contact (col 12, ln 39 – col 13, ln 9); as recited in claim 1.

As to claim 5, Soejima et al further anticipates the recess has four sides and the plurality of leads comprise four leads on the four sides (See Figure 18 item 13).

Soejima et al anticipates (Figure 6) an interconnect for testing a semiconductor component having a bumped contact comprising:

- a substrate (11);

- a recess (12 and 20) in the substrate; and

- a plurality of flexible leads (14 and 15) on the substrate cantilevered over the recess configured to electrically engage the bumped contact and to move within the recess by a distance sufficient to accommodate variations in a size, a shape or a planarity of the bumped contact, each lead having a cantilever length, a width, a thickness and a modulus of elasticity selected to provide a desired spring constant, and a shape that substantially matches a topography of the bumped contact (col 12, ln 23-38); as recited in claim 6.

As to claim 7, Soejima et al further anticipates each lead includes at least one projection (16) configured to penetrate the bumped contact.

As to claim 9, having each lead comprising an enlarged portion on the substrate and a terminal portion cantilevered over the recess for contacting the bumped contact is considered an inherent characteristic of Soejima et al.

As to claim 10, Soejima et al further anticipates each lead comprises a metal selected from the group consisting of tungsten, titanium, nickel, platinum, iridium, or vanadium (col 11, ln 42-43).

As to claim 11, Soejima et al further anticipates the recess has four sides and the plurality of leads comprise four leads on the four sides (See Figure 18 item 13).

Soejima et al anticipates (Figure 6) an interconnect for testing a semiconductor component having a bumped contact comprising:

- a substrate (11);

- a recess (12 and 20) in the substrate; and

- a plurality of leads (14 and 15) on the substrate cantilevered over the recess and configured to support and to electrically engage the bumped contact within the recess, and to move in a z-direction within the recess to accommodate variations in a height or a diameter of the bumped contact, each lead having a radius of curvature substantially equal to a radius of the bumped contact (col 12, ln 23-38); as recited in claim 12.

As to claim 17, Soejima et al further anticipates each lead has a cantilevered length, a width and a thickness configured to provide a desired spring constant (col 5, ln 50-53).

As to claim 18, having an enlarged portion on each lead on the substrate and a terminal portion cantilevered over the recess for contacting the bumped contact is considered an inherent characteristic of Soejima et al.

Soejima et al anticipates (Figure 6) a system for testing a semiconductor component having a bumped contact comprising:

a carrier (Figure 18) for retaining the semiconductor component;

an interconnect on the carrier comprising a substrate (11), a recess (12 and 20) in the substrate having a size approximately equal to that of the bumped contact, and a plurality of leads cantilevered over the recess configured to electrically engage the bumped contact and to move within the recess by a distance sufficient to accommodate variations in a size, a shape or a planarity of the bumped contact, each lead comprising at least one projection (16) configured to penetrate the bumped contact (col 12, ln 19-38); and

a test circuitry in electrical communication with the leads configured to apply test signals to the component (col 1, ln 6-8); as recited in claim 25.

As to claim 26, having each lead including a non bonding outer layer and a radius of curvature substantially equal to a radius of the bumped contact is considered an inherent characteristic of Soejima et al.

As to claim 27, Soejima et al further anticipates the semiconductor component comprises an element selected from the group consisting of semiconductor dice, semiconductor packages and semiconductor wafers (col 2, ln 9-11).

Soejima et al anticipates (Figure 6) a system for testing a semiconductor component having a bumped contact comprising:

a testing apparatus (col 1, ln 6-8);

an interconnect mounted to the testing apparatus comprising:

a substrate (11);

a recess (12 and 20) in the substrate having a size approximately equal to that of the bumped contact; and

a plurality of leads on the substrate configured to electrically engage the bumped contact, each lead cantilevered over the recess and configured to move within the recess by a distance sufficient to accommodate variations in a size, a shape or a planarity of the bumped contact, each lead having a cantilever length, a width, a thickness and a modulus of elasticity selected to provide a desired spring constant, and a shape substantially matching a topography of the bumped contact (col 12, ln 19-38); and

a test circuitry (col 1, ln 6-8) in electrical communication with the connecting segment; as recited in claim 31.

4. The following is a statement of reasons for the indication of allowable subject matter:

Claims 2, 8 and 32 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

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The added limitations of a connecting segment substantially encircling a periphery of the recess configured to electrically connect the leads to one another as mentioned in claim 2;

a connecting segment on the substrate electrically connecting the leads to one another as mentioned in claim 8; or

a connecting segment substantially encircles a periphery of the recess and electrically connects the leads as mentioned in claim 32; have not been found.


5. A shortened statutory period for response to this action is set to expire three month(s) from the date of this letter. Failure to respond within the period for response will cause the application to become abandoned. 35 U.S.C. 133

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Russell Kobert whose telephone number is (703) 308-5222.

Any inquiry of a general nature or relating to the status of this application should be directed to the Group receptionist whose telephone number is (703) 308-0956.



Russell M. Kobert
Patent Examiner
Group Art Unit 2829
June 20, 2002



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